USSR

TKACHEV, V. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 5, 1973, pp 102-103

ethylene coatings of high density increase the corrosion-fatigue strength of 30KhGSNA steel specimens in aggressive media; this increase is most effective in acid media. The most protective effect of polyethylene coating was found on hardened and low-temperature annealed specimens. Two figures, one table, eight bibliographic references.

2/2

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INCREASE IN THE STABILITY OF ADHESION PROPERTIES IN A POLYETHYLENE METAL SYSTEM -U-

AUTHOR-(05)-BEIDER, E.YA., VINOGRADOVA, L.M., GUDIMOV, M.M., YEFREMOVA, Z.A., KOROLEV, A.YA.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 222-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ADHESION, POLYETHYLENE, ALUMINUM SURFACE, ISOCYANATE, ORGANIC SILANE, OLEIC ACID, METAL TO NONMETAL BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0666 STEP NO--UR/0460/70/012/003/0222/0225

CIRC ACCESSION NO--AP0124338

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0124338 PROCESSING DATE--30OCT7(

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AL SURFACE TREATED WITH TOLYLENE DIISOCYANATE, GAMMA AMINO PROPYLTRIETHOXYSILANE, AND OLEIC ACII EXHIBITED SUPERIOR ADHESION TO POLYETHYLENE DEPOSITED BY EDDY SPRAYING. THE MODIFIED SURFACES WERE ALSO RESISTANT TO LONG TERM EXPOSURE TO H SUB2 O. A MODIFICATION MECHANISM IS PROPOSED.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CRACKING OF FLUOROPLASTIC TUBING -U-

AUTHOR-(05)-SYTYY, YU.V., GUDIMOV, M.M., SOSHKO, A.I., TYNNYY, A.N., KALININ, N.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER 1970, 6(2), 87-90

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FLUOROCARBON RESIN, HYDRAULIC FLUID, POLYMER HEAT EFFECT, LOW TEMPERATURE EFFECT, RUBBER, ANISOTROPY, STRESS ANALYSIS, CRACK PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E09 STEP NO--UR/0369/70/006/002/0087/0090

CIRC ACCESSION NO--AP0140317

UNCLASSIFIED

2/2 039 UNCLASSIFIED

CIRC ACCESSION NO--AP0140317 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE TEMP. IN THE MINUS 60 TO PLUS 230DEGREES RANGE, TIME, AND CONTACT WITH AVIATION HYDRAULIC FLUID WAS STUDIED ON THE DEVELOPMENT OF CRACKS ON THE SURFACE OF TUBING MADE OF FLUORINATED RUBBER. MOST CRACKS ARE ALIGNED ALONG THE TUBE AXIS INDICATING THAT RADIAL RATHER THAN LONGITUDINAL STRESSES PRODUCE THEM. THE PLASTICIZING OF THE RUBBER WITH THE HYDRAULIC FLUID AND THE ANISOTROPY OF THE RUBBER STOCK INDUCED BY EXTRUSION ARE CONTRIBUTING FACTORS. FACILITY: FIZ.-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--REMOVAL OF DUST FROM MERCURY CONTAINING GASES FROM TUBE FURNACES BY DRY ELECTROSTATIC PRECIPITATORS -U-
AUTHOR-(04)-SHEBZUKHOV, D.A., DENISOV, V.F., KLEANDROV, T.N., GUDIN, B.S.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1), 35-9

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--INDUSTRIAL FURNACE, MERCURY, AIR POLLUTION, ELECTROSTATIC PRECIPITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0749 STEP NO--UR/0136/70/043/001/0035/0039

CIRC ACCESSION NO--AP0107291
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0107291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INPRINCIPLE POSSIBILITY OF EMPLOYING AN ELECTROSTATIC PRECIPITATOR FOR REMOVAL OF DUST FORM HG CONTG. GASES FROM TUBE FURNACES IS DEMONSTRATED. THE INSTALLATION OF ELECTROSTATIC PRECIPITATORS MAKES IT POSSIBLE TO REDUCE GREATLY THE VOL. OF REPROCESSED STUPP, AND TO INCREASE THE DIRECT EXTN. OF HG FROM IT. ELECTROSTATIC PRECIPITATORS ALSO HAVE A DEFINITE ECONOMIC ADVANTAGE.

UNCLASSIFIED

USSR

UDC 621.178.372:669.14.018.8

ZOTEYEV, V. S., USTIMENKO, M. YU., GUDKOV, A. A., and BALASHOV, L. V.,
Central Scientific Research Institute of Ferrous Metallurgy

"Static and Fatigue Strength of Alloy KhN40MDTYu (EP543) After Different Strengthening Modes"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 68-70

Abstract: The effect of plastic deformation and subsequent aging on the static and fatigue strength of alloy EP543 (author's certificate No 172869) was investigated. The alloy had the following chemical composition (in %): 0.04 C (max), 0.8 Si (max), 0.8 Mn (max), 0.02 S (max), 0.035 P (max), 14-17 Cr, 39-42 Ni, 4.5-6.0 Mo, 2.5-3.2 Ti, 0.7-1.2 Al, and 2.7-3.3 Cu (per ChMTU-1-988-70). After standard heattreatment and aging (quench from 1050-1100°C, aged at 750°C for 5-15 hours the tensile strength was greater than or equal to 110 kgf/mm^2, and yield strength was greater than or equal to 110 kgf/mm^2, and yield strength was greater than or equal to 65 kgf/mm^2. Plastic deformation was done by two methods: rolling with completion at 900-925°C, ensuring absence of recrystallization (mode I) and static tension at room temperature (mode II). It was found that the strength

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USSR

ZOTEYEV, V. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug73, pp 68-70

of alloy EP543 can be substantially increased by high-temperature deformation with completion at those temperatures when the recrystallization process does not occur and aging (mode I), or by plastic deformation at room temperature (10-20%) (mode II). The most effective treatment was mode I, where fatigue strength is increased by approximately 100% in comparison with the initial alloy state. Three figures, two bibliographic references.

2/2

USSR

UDC: 53.07/.08+53.081.5

GUSKOV, A. N., GRESHILOV, A. A., KOLOBASHKIN, V. M., MENAYEV, Ye. M.

"Using 'Xenon-133' Gas to Calibrate Scintillation Gamma Spectrometers"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 163-170 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A688)

Translation: The paper deals with the peculiarities of using a "Xenon-133" gas source to calibrate scintillation spectrometers for determining the content of ^{133}Xe and ^{131m}Xe isotopes in gas mixtures. Bibliography of 6 titles. M. L.

1/1

USSR

UDC 621.039

GUDKOV, A. N., KOLOBASHKIN, V. M., NEKRASOV, V. I., and HOZYAINOV, M. S.

"Certain Characteristics of the Development Rate of Nuclear Power Engineering"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems in Dosimetry and Radiation Shielding -- Collection of Works), No 11, Moscow, Atomizdat, 1970, pp 194-197 (from RZh-Fizika, No 4, Apr 71, Abstract No 4V515)

Translation: On the basis of an analysis of published data, the author established that in the period 1961-1971 reactor power in the world increased exponentially with a rate of growth $\beta = 0.28 \pm 0.03$ year^{-1}, corresponding to doubling of power in approximately 2.5 years. Data is presented on the geographical distribution of the capacities of atomic power stations.

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USSR

UDC: 621.317.7:621.317.335.029.64

GUDKOV, O. I., CHUGUNOV, Yu. I., POTAPOV, A. A.

"Instruments for Measuring the Permittivity and Loss Tangent of a Material on Superhigh Frequencies, and the Dielectric Characteristics of Mica on a Frequency of 9.2 GHz"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 88-89 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A364)

Translation: A brief report is given on laboratory microwave dielcometers of the "Resonance" and "Helium" types developed by the Angarsk Affiliate of the Experimental Design Office of Automation for substances in any phase. Operation of the instruments is based on measurement of the frequency difference of two resonators -- a working resonator and a measurement resonator. A table is given of the results of measurement of the permittivity and loss tangent of crystals of natural mica from East Siberian deposits. E. L.

1/1

USSR UDC: 621.317.33:537.363(088.8)

GUDKOV, O. I., CHUGUNOV, Yu. I., Angarsk Affiliate of the Experimental Design Office of Automation

"A Device for Determining the Dielectric Properties of Liquids on Superhigh Frequencies"

USSR Author's Certificate No 263981, filed 26 Mar 66, published 24 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A380)

Translation: The proposed device is one of those instruments which indicate the dielectric parameters of liquids as a function of composition and concentration. The device contains a microwave oscillator, master and reference cavities, an AFC system, detectors and a comparison system. The essence of the proposal is that the AFC module is coupled to and operates with the master cavity rather than with the measurement cavity. Instead of an adder, a null indicator is used with resonance amplifier which compares the frequencies of the master and measurement cavities.
E. L.

1/1

GUDKOV, S.

Military Affairs

Science

USSR UDC 669·71'295'35/536-48

GUDKOV, S. I.

"Mechanical Properties of Commercial Nonferrous Metals at Low Temperatures"

Mekhanicheskiye Svoystva Promyshlennykh Tsvetnykh Metallov Pri Nizkikh Temperaturakh [English Version Above]. Metallurgiya Press, 1971, 304 pages.

Translation of Annotation: This book presents a systematization and generalization of data on the thermophysical and mechanical properties of the most widely used nonferrous metals and alloys at temperatures from +20 to -269°C.

For each type of alloy, the chemical composition, mechanical properties of semifinished goods and purpose are presented in correspondence with the state standard or technical condition.

Data on physical properties (thermal expansion, heat conductivity, heat capacity) and mechanical properties (strength, plasticity, impact toughness and fatigue) of the base metals, as well as welded and soldered junctions are presented in the form of tables and graphs.

The book is designed for engineering and technical workers of design and planning offices at machine building plants and organizations utilizing equipment operating at low temperatures. 90 Figures; 330 Tables; 105 Biblio. Refs.

USSR UDC 669·71'295'35/536-48

GUDKOV, S. I., Mekhanicheskiye Svoystva Promyshlennykh Tsvetnykh Metallov Pri Nizkikh Temperaturakh, Metallurgiya Press, 1971, 304 pages.

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USSR UDC 669.71'295'35/539.18

GUDKOV, S. I., Mekhanicheskiye Svoystva Promyshlennykh Tsvetnykh Metallov Pri Nizkikh Temperaturakh, Metallurgiya Press, 1971, 334 pages.

USSR

UDC 669.71'295'35/536-48

DUDKOV, S. I., Mekhanicheskiye Svoystva Promyshlennykh Tsvetnykh Metallov Pri Nizkikh Temperaturakh, Metallurgiya Press, 1971, 304 pages.

4/4

USSR

UDC 620.17:620.176.251.1:669.14.018.298

KOSHELEV, P. F., and GUDKOV, S. I., Institute of Mechanical Engineering, All-Union Scientific Research Institute for Cryogenic Machines

"Mechanical Properties of Structural Alloys at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 34-36

Abstract: This work presents a study of the mechanical properties of the following nonferrous alloys used in cryogenic devices: VT1-0, VT3-1, VT5-1, LZhMts-59-1-1, LK80-3L and AMg5, as well as the sensitivity of VT3-1 and AMg5 alloys to stress concentrators at 20 to -253°C. All of the alloys studied have sufficient reserve of plasticity of all temperatures tested and are recommended for the manufacture of structures operating at temperatures between 20 and -253°C, except VT3-1, which should be used only at temperatures above -196°C, due to its increased sensitivity to stress concentration.

1/1

USSR UDC 547.416'141:547.435'141

REUTOV, O. A., GUDKOVA, A. S., and PETROSYAN, I. V., Moscow State University imeni M. V. Lomonosov

"Hydrobromides of 2-Bromo-1-Amino-2-Metnylpropane and 1-Amino-2-Methylpropanol-2"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, p 213

Abstract: (letter to editor): The writers claim to have obtained the hydrobromide of 2-bromo-1-amino-2-methylpropane by several methods: heating of 1-amino-2-methylpropanol-2 in a sealed ampoule with 48%-HBR at 70-80°, and substitution of the hydroxyl in the hydrobromide of 1-amino-2-methyl-propanol-2 by bromine with the help of PBr_3 in various solvents; also without a solvent, or with $SOBr_2$ in $CHCl_3$.

1/1

USSR

UDC 547.118

GUDKOVA, I. P., CHAN DIN' DAT, and NIFANT'YEV, E. YE., Chair of Chemical Technology

"A Novel Method for the Conversion of Amidophosphites Into Amidophosphates"

Moscow, Vestnik Moskovskogo Universiteta, Vol 12, No 6, Nov-Dec 71, pp 750-751

Abstract: Amidophosphites were shown to react readily with carbon tetrachloride and methanol yielding corresponding amidophosphates. To 4 g of dimethylamido-1,3-butylenephosphite 6 ml methanol is added followed by dropwise addition of 4 ml carbon tetrachloride. The product is vacuum-distilled yielding 76.7% dimethylamido-1,3-butylenephosphate, b.p. 42-44°/1 mm Hg, n_D^{20} 1.4450, d^{20} 1.1120. Analogously the 6-tetraethyldiamidophosphate of 1,2;3,4-diisopropylidenegalacto-pyranose was obtained in 83% yield: b.p. 150-155°/10^{-4} mm Hg.

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USSR

UDC 547.26'118

NIFANT'EV, E. Ye., IVANOVA, N. L., GUDKOVA, I. P., SHILOV, I. V. Moscow State University imeni M. V. Lomonosov

"Acid Catalysis in the Reaction of Amides of Trivalent Phosphorus Acids with Mercaptans and Carbonyl Compounds"

Leningrad, Zhurnal Obshcei Khimii, Vol 40, No 6, Jun 70, pp 1420-1421

Abstract: Phosphorus acid amides (I) readily react with aliphatic mercaptans in the presence of acetic acid, yielding thiol esters. Carboxylation of I takes place only in the presence of acidic compounds. It is possible that this mechanism involves initial protonation of the P atom. Our previously proposed mechanism for the formation of α-aminophosphonates involving only the amidophosphite and an aldehyde does not agree with the experimental data. It is probable that also in this case, the mechanism is based on a preliminary protonation step.

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USSR UDC: 547.118

NIFANT'YEV, E. YE., GUDKOVA, I. P., and KOCHETKOV, N. K., Moscow State University imeni M. V. Lomonosov, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR, and Institute of Organic Chemistry imeni N. D. Zelinskiy, Moscow, Academy of Sciences USSR

"Study of Reaction of 1,6-Anhydrohexoses With Hypophosphorous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 460-463

Abstract: In the search for methods for the synthesis of phosphorus-containing sugars, the authors attempted to use the reaction of 1,6-anhydrohexoses with hypophosphorous acid by analogy with the reaction of hypophosphorous acid with acetals. Experiments showed that heating of levoglucosan with hypophosphorous acid or with a mixture of the acid with its sodium salt at 80-85° gives 6-desoxy-D-glycophosphonous acids.

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1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REACTION OF 1,6,ANHYDROHEXOSES WITH HYPOPHOSPHOROUS ACID -U-

AUTHOR-(03)-NIFANTYEV, E.YE., GUDKOVA, I.P., KOCHETKOV, N.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 460-3

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--HEXOSE, HETEROCYCLIC OXYGEN COMPOUND, GLUCOSE, ORGANIC PHOSPHORUS COMPOUND, CHROMATOGRAPHY, CHEMICAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1438 STEP NO--UR/0079/70/040/002/0460/0463

CIRC ACCESSION NO--AP0116883

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING 10 G H SUB3 PO SUB2 WITH 10 G LEVOGLUCOSAN 10 HR AT 80-5DEGREES GAVE A VERY HYGROSCOPIC SOLID CONTG. 7.3PERCENT P, WHICH WAS SEPD. INTO (6,DEOXY,D,GLUCOS,6,YL)PHOSPHONOUS ACID, (I), ISOLATED AS NH SUB4 SALT, M. 180DEGREES. THE CRUDE PRODUCT, REPPTD. SEVERAL TIMES FROM ME SUB2 NCHO WITH ET SUB2 O GAVE A PRODUCT CONTG. 6.8-7.2PERCENT P, WHICH HEATED WITH N HCL 1.5 HR GAVE CHROMATOGRAPHIC SPOTS OF D,GLUCOSE AND I. HEATING LEVOGLUCOSAN WITH H SUB3 PO SUB2 AND NAPH SUB2 O SUB2 40 HR AT 85DEGREES GAVE NA SALT WITH PROBABLE STRUCTURE (II) PURIFIED BY PPTN. FROM MEOH WITH ET SUB2 O, IN AQ. SOLN. THIS UNDERGOES MUTAROTATION. SIMILAR REACTION WITH 1,6,ANHYDROGALACTOSE IN 15 HR GAVE THE NA SALT OF (6,DEOXY,D,GALACTOS,6,YL)PHOSPHONOUS ACID, PURIFIED BEST ON A CELLULOSE COLUMN. 1,2:3,4,DI,O,ISOPROPYLIDENE,ALPHA,L,ARABINO,HEX,5,ENOPYRANOSE AND NAH SUB2 PO SUB2 IN MEOH WITH A TRACE OF TERT,BUOOH IN 15 HR AT 145DEGREES IN AN AUTOCLAVE, THEN HEATED WITH AQ. HCL 1 HR, GAVE THE NA SALT OF (6,DEOXY,D,GALACTOS,6,YL)PHOSPHONOUS ACID. I CHLORINATED IN AQ. SOLN. IN THE COLD AND KEPT 1.5 HR PRIOR TO NEUTRALIZATION TO PH 7.5, GAVE 60PERCENT NH SUB4 SALT OF (6,DEOXY,D,GLUCOS,6,YL)PHOSPHONIC ACID, AMORPHOUS SOLID, WHICH WAS OXIDIZED WITH 4 MOLES PERIODATE (KIO SUB4), WHILE HEATING THE ACID WITH MEOH AT 140DEGREES AND GAVE 6,DEOXY,D,GLUCOSE AND ME PHOSPHITES. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC: 616.12-089.843-089.168

FAL'KOVSKIY, G. E., KAZAKOV, E. N., YARLYKOVA, Ye. I., ASTRAKHANTSEVA, G. I., ALEKSEYEVA, L. A., KOSHOVA, I. D., SOKOLOV, M. V., GALANKINA, I. Ye., KOL'SHUKHINA, L. A., and CUDNOVA, R. G., Institute of Cardiovascular Surgery imeni A. N. Bakulev, Academy of Medical Sciences USSR, Moscow

"The fate of an Heterotopic Heart Allotransplant"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 3-12

Abstract: Donor hearts transplanted to the iliac arteries of recipient dogs survived up to 16 days. The causes of cessation of transplant function during the first 48 hours were surgical complications (death of the recipient from the anesthetic, hemorrhages from the sutures, thrombosis). In the absence of such complications, the transplants continued to function 3 to 12 days average, (4.75 days) when immunodepressants were not used, and 3 to 8 days (average, 6.16 days) when they were. Cardiac arrest was preceded by arrhythmias, a decrease in voltage of the ventricular complex, and increase in lymphocytes in the peripheral blood following leukopenia. Immunomorphological changes in the recipient's lymphatic system preceded the morphological signs of rejection in the transplant (pronounced lymphoid-histiocyte infiltration, changes in the arteries, and metabolic disturbances in the myocardium).

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1/3 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE POLE TIDE IN THE HIGH LATITUDES ATMOSPHERE -U-

AUTHOR-(03)-GUDKOVICH, Z.M, SARUKHANYAN, E.I., SMIRNOV, N.P.

COUNTRY OF INFO--USSR, ARCTIC OCEAN

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO. 4, 1970, PP. 954-957

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--GEOGRAPHIC LATITUDE, SEA ICE, SEA LEVEL, PRESSURE, ATMOSPHERE, ARCTIC CLIMATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0966 STEP NO--UR/0020/70/190/004/0954/0957

CIRC ACCESSION NO--AT0110675

UNCLASSIFIED

2/3 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0110675

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENCE OF A NUTATIONALLY INDUCED POLE TIDE IN THE EARTH'S ATMOSPHERE HAS BEEN DEMONSTRATED AND THEREFORE ANY STUDY OF VARIATIONS OF THE ICE CONTENT IN ARCTIC SEAS MUST TAKE INTO ACCOUNT THE EXISTENCE OF 14 MONTH PRESSURE VARIATIONS WHICH OCCUR IN THE HIGH LATITUDES WHICH ARE ASSOCIATED WITH MOTION OF THE POLES. SEA LEVEL PRESSURE WAS ANALYZED FOR THOSE LATITUDES USING MEAN MONTHLY PRESSURE MAPS. THE AUTHORS PROCESSED 151 SERIES OF MEAN MONTHLY PRESSURES FOR THE 14 YEARS 1951-1964. THE PERIODOGRAM ANALYSIS METHOD WAS USED. THIS MADE IT POSSIBLE TO DETERMINE THE PHASES AND AMPLITUDES OF 14 MONTH PRESSURE VARIATIONS FOR ALL SELECTED POINTS. ANALYSIS OF THE CONSTRUCTED ISOAMPLITUDES MAP INDICATES THAT IN THE ARCTIC ATMOSPHERE THERE ARE APPRECIABLE 14 MONTH PRESSURE FLUCTUATIONS WHOSE AMPLITUDES ATTAIN 1.5 MB, WHICH IS ABOUT 50PERCENT OF THE AMPLITUDE OF THE ANNUAL VARIATION. THIS IS NOT OBSERVED IN SOME AREAS, BUT IN THE ARCTIC BASIN THERE ARE FIVE REGIONS WHERE THE AMPLITUDE OF THE PRESSURE VARIATION EXCEEDS 0.5 MB. WITH A CHANGE IN LONGITUDE FROM WEST TO EAST THE PHASES OF THESE VARIATIONS DECREASE BY A VALUE APPROXIMATELY CORRESPONDING TO THE LONGITUDE DIFFERENCE OF THESE REGIONS. CHANGES DO NOT OCCUR GRADUALLY, BUT IN A JUMP. THE AUTHOR GIVES PARTICULAR ATTENTION TO THIS PHENOMENON AND ITS EFFECTS IN THREE OF THE REGIONS OF INCREASED NUTATIONAL PRESSURE ANOMALIES: THOSE OVER THE BARENTS SEA, TAYMYR PENINSULA IS ON HOW THIS AFFECTS THE ICE CONTENT OF THESE SEAS.

UNCLASSIFIED

3/3 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0110675

ABSTRACT/EXTRACT--FOR EXAMPLE, THE ICE CONTENT OF THE LAPTEV SEA IS DETERMINED BY THE PRESSURE GRADIENT BETWEEN THE FIRST AND THIRD OF THE ABOVE MENTIONED REGIONS. THE MOST UNFAVORABLE ICE CONDITIONS OCCUR WHEN THE RADIUS VECTOR PASSES THROUGH THE GREENWICH MERIDIAN; THE MOST FAVORABLE ICE CONDITIONS PREVAIL WHEN THE RADIUS VECTOR PASSES THROUGH THE MERIDIAN 180DEGREES. AS A COMPLICATING FACTOR, DURING DIFFERENT PERIODS THE AIR TRANSFER ANOMALIES EXERT A DIFFERENT EFFECT ON THE FORMATION OF ICE CONDITIONS. THE MOST IMPORTANT MONTH IS MAY, WHEN THE MAXIMUM NUTATIONAL ANOMALIES OF AIR TRANSFER ARE OBSERVED. DURING YEARS WHEN NUTATIONAL ANOMALIES OCCUR IN MAY THE POLE TIDE PRESSURE WAVE HAS ITS GREATEST EFFECT ON ICE CONDITIONS. THIS OCCURS EACH SEVEN YEARS.

FACILITY: ARCTIC AND ANTARCTIC SCIENTIFIC RESEARCH INSTITUTE.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PRESSURE,POLAR TIDE,AND ITS INFLUENCE ON THE ICE CONDITIONS OF THE ARCTIC SEAS -U-
AUTHOR-(03)-GUDKOVICH, Z.M., SARUKHANYAN, E.I., SMIRNOV, N.P.

COUNTRY OF INFO--USSR

SOURCE--OKEANOLOGIYA, 1970, VOL 10, NR 3, PP 426-437

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--PRESSURE, ATMOSPHERE, POLAR AREA, OCEAN, CYCLONE, ICE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1867 STEP NO--UR/0213/70/010/003/0426/0437

CIRC ACCESSION NO--AP0129227
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0129227

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION IS BEING GIVEN TO THE FOURTEEN MONTH VARIATION OF ATMOSPHERIC PRESSURE OVER THE ARCTIC CAUSED BY THE NUTATION OF THE EARTH'S POLES. TO EXPLAIN THE SPECIFIC FEATURES OF THE VARIATION A HYPOTHESIS IS ADVANCED ACCORDING TO WHICH THE NUTATIONAL VARIATIONS OF ATMOSPHERIC PRESSURE ARE DUE TO THE SUPERPOSITION OF SECONDARY WAVES UPON THE PRIMARY CIRCUMPOLAR PRESSURE WAVE. THESE WAVES ARISE OWING TO THE INCLUENCE OF THE PRESSURE POLAR TIDE ON THE INTENSITY OF CYCLONIC ACTIVITY IN THE ZONES OF CYCLOGENESIS. THE ANALYSIS OF THE NUTATIONAL FLUCTUATIONS OF THE PRESSURE GRADIENTS IN THE THREE MAIN REGIONS OF THE ARCTIC MADE IT POSSIBLE TO EXPLAIN THE PECULIARITIES OF THE PREVIOUSLY ESTABLISHED RELATION OF ICE AND HYDROLOGICAL CONDITIONS TO THE MOVEMENT OF THE EARTH'S POLE, AS WELL AS TO FIND OUT A NUMBER OF NEW REGULARITIES OF THIS PHENOMENON.

FACILITY: ARKTICHESKIY I ANTARKTICHESKIY NAUCHNO-ISSLED. INSTITUT.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ANALYSIS OF ANOMALOUS LOW FREQUENCY NOISE OF A MASTER -U-

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CIRC ACCESSION NO--AP0104756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE PRESENTED OF AN EXPERIMENTAL INVESTIGATION OF THE NOISE SPECTRA OF RECEIVING DEVICES WITH A TRAVELING WAVE MASER AT THE INPUT. THE INVESTIGATION WAS CONDUTED WITH THE AID OF A SPECTRUM ANALYZER WITH A 0.25 HZ BAND AND AN ACCURACY OF THE EQUIPMENT FREQUENCY OF 0.1 HZ IN THE 3 TO 995 HZ RANGE. THE ANALYZER WAS CONNECTED TO THE LOAD OF THE SQUARE LAW DETECTOR OF THE RECEIVING DEVICE INVESTIGATED. THE NOISE OF THE MATCHED LOAD WITH T SUBNOISE EQUALS 290DEGREESK SERVED AS THE INPUT SIGNAL. TO ELEMINATE THE NECESSITY FOR ADJUSTING THE FREQUENCY CHARACTERISTICS OF THE RECEIVING DEVICE WITH THE MASER AND WITHOUT IT, THE SPECTRAL DENSITY OF THE NOISE WAS NORMALIZED TO UNITY AT THE HORIZONTAL PART OF THE SPECTRUM, AND IRREGRULARITY OF THE SPECTRUM WAS MEASURED IN RELATIVE UNITS. MEASUREMENTS OF THE SPECTRUM WERE CONDUCTED AT THE OUTPUT OF A 5 CM BAND RADIOMETER WITH A TRAVELING WAVE MASER AT THE INPUT. IN THE MEASURING PROCESS, THE MASER OPERATED IN A SATURATION REGIME OF THE ILLUMINATION POWER. THE DEPENDENCE OF THE SPECTRAL DENSITY OF THE NOISE ON THE FREQUENCY IS SHOWN. IT IS CONCLUDED THAT BOILING HELIUM IN THE RETARDING SYSTEM OF THE TRAVELING WAVE MASER PRODUCES AN ANOMALOUS LOW FREQUENCY NOISE, THE SPECTRAL DENSITY OF WHICH INCREASES WITH A DECREASE OF THE FREQUENCY, BEGINNING WITH A FREQUENCY ON THE ORDER OF 100 HZ. IN ORDER TO REALIZE SENSITIVITY IN RADIOMETERS WITH A TRAVELING WAVE MASER WHICH HAVE ANOMOLOUS LOW FREQUENCY NOISE, IT IS NECESSARY TO SELECT A MODULATION FREQUENCY ABOVE 100 HZ. ANOMOLOUS NOISE IS ABSENT IN TRAVELING WAVE MASERS WITH A RETARDING SYSTEM NOT FILLED WITH LIQUID HELIUM.

UNCLASSIFIED

USSR

UDC 616.981.42-036.2(571.1)

GUDOSHNIK, A. N., Omsk Institute of Natural-Focus Infections

"Nosogeography of Brucellosis in Western Siberia"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 105-107

Abstract: The patterns of spread of brucellosis are analyzed on the basis of statistical data in relation to farming activity and natural conditions in four West Siberian oblasts of the RSFSR - Kurganskaya, Kemerovoskaya, Tomskaya, and Novosibirskaya. The disease was first recorded in 1929 in the steppe and forest-steppe zone among farm animals and a little later among humans. After a slow start it spread rapidly throughout the area mainly because of sick animals imported from other regions of the country. As the disease spread among animals it became more common among humans. A significant decline did not set in until the early 1960s, when mass campaigns to vaccinate the local population and cattle were undertaken. In recent years brucellosis of cattle has been reported in all four oblasts, while brucellosis of sheep occurs mainly in the steppe and forest-steppe zones. The incidence of acute brucellosis among people is low with little year-to-year fluctuation.

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USSR

UDC 621.762.2:669.269'784

GUREVICH, B. D., NEZHEVENKO, L. B., GROSHEV, V. I., and GUDOVICH, A. P.

"New Methods for Dispersion of Refractory Metal Carbide Powders"

Tugoplavk. karbidy [Refractory Carbides -- collection of works], Kiev, Nauk. dumka Press, 1970, pp. 40-44 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G438 by the authors)

Translation: The optimal modes are determined for powdering of Zr carbide by ultrasonics and in a planetary centrifugal mill. Grinding by ultrasonics produces spherical powders with high dispersion and small quantities of rubbed impurities. The impurities rubbed from the surface of the mill during grinding can be reduced by using a Zr carbide liner. 2 figures; 2 tables; 6 biblio. refs.

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USSR

UDC 547.26'118

GODOVIKOV, N. N., GUDRALIYEV, Kh., Kh., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Academy of Sciences USSR

"Synthesis of S-(β-Arylmethylaminoethyl) Diphenylthiophosphinates and Their Methiodides"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1942-1944

Abstract: Earlier research indicates that some O,O-diethyl S-(β-arylmethyl-aminoethyl) thiophosphates and their methyl sulfates possess selective activity toward butyrylcholine esterase. The purpose of this study was to determine whether such selective action would be reflected in similar triophosphates having (at the phosphorus atom) bulky substituents such as phenyl groups. To this end a synthesis was carried out of the series S-(β-arylmethylaminoethyl) diphenylthiophosphinates (I) and their methidides (II)

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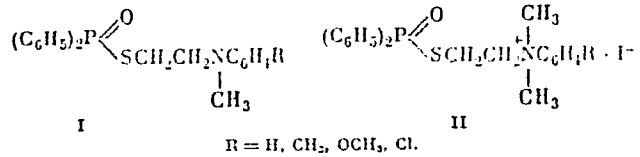
USSR

GODOVIKOV, N. N., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1942-1944



I II

R = H, CH_3, OCH_3, Cl.

Compounds (I) were obtained by treatment of N-methyl-N-β-bromo(chloro)-ethylarylamines with sodium diphenylthiophosphinate. To increase yields, use was made of bromoderivatives (in most cases); the yields of the corresponding thioesters were 70-80%. The obtained compounds were boiled in nitromethane with excess methyl iodide to form the appropriate methiodides (II). The experimental portion of the synthesis of N-methyl-N-β-bromethyl-m-chloroaniline, S-(β-arylmethylaminoethyl diphenylthiophosphinates and methiodides of S-(β-arylmethylaminoethyl) diphenylthiophosphinates is described in great detail. Tables citing constant values, yields and other analytical results are given.

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USSR UDC: 539.3:534.1

GUDRAMOVICH, V. S.

"Plastic Bulging and Post Critical Behavior of Cylindrical Shells with Joint Application of Twisting and Transverse Pressure"

4-Ya Vses. Konf. Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability and Structural Mechanics, Abstracts of Reports -- Collection of Works], Moscow, 1972, pp 194-195 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V351)

Translation: Bulging and post critical behavior of isotropic cylindrical shells beyond the limits of elasticity are studied with combined application of torque and transverse pressure. The problem is solved by digital computer by the methods of successive approximations using known approximations of the deformation diagram. The results of the first and second approximation differ slightly. A comparison is presented with the results of experimental studies. Smooth, turned shells of AMG-6M alloy are tested for R/h=60-100, l/R=1.5-2.5 (where R is the radius of the shell, l is its length, h is its thickness). The load-bearing ability of a cylindrical shell subjected to twisting and transverse pressure is discussed in the geometrically nonlinear statement. A model of an ideally rigid, plastic body and an associated flow

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Gudramovich, V. S., 4-Ya Vses. Konf. Probl. Ustoychivosti v Stroit. Mekh., Tezisy Dokl., Moscow, 1972, pp 194-195.

rule with the Mises flow condition are used.

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USSR

UDC 547.852.3'791

SOLOV'YEVA, V. V., and GUDRINIYETSE, E. YU., Riga Polytechnical Institute

"Reactions of Azidoheterocyclic Compounds with C-H-Acids. IV. Reaction of 1-Phenyl-4-azido-5-chloropyridazone-6 With Some β-Dicarbonyl Compounds"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 256-258

Abstract: 1-Phenyl-4-azido-5-chloropyridazone-6 (I) reacts with acetylacetone, benzoylacetone, dibenzoylmethane, and acetoacetic ester in presence of triethylamine, yielding 1,2,3-triazolylpyridazones-6; with diethyl malonate and acetoacetic ester in presence of sodium ethoxide the products are diazidocarbonyl derivatives. Dimedon and indandione-1,3 reacted with (I) yielding 1-phenyl-4-amino-5-chloropyridazone-6, 2-diazodimedone, and 2-diazoindanedione-1,3 respectively.

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UDC 547.792 + 547.791

USSR

BRUVELE, N. R., and GUDRINIYETS, YU., Riga Polytechnical Institute, Riga, Latvian Sovnarkhoz

"Azidodicarbonyl Compounds. I. Reaction of 2-Azido-2-phenylindandione-1,3 With Propiolic Acid"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 2, 1970, pp 198-201

Abstract: 2-Azido-2-phenylindandione-1,3 adds to the triple bond of propiolic acid to give 2-(4'-carboxy-1',2',3'-triazolyl-1')-2-phenylindandione-1,3 (I), m.p. 176°. Analogously 2-p-methoxyphenyl- and 2-p-chlorophenyl- analogues of (I) are obtained, melting at 143-145° and 174°, respectively; all compounds melt with decomposition. Decarboxylation of (I) yields 2-(1',2',3'-triazolyl-1',-2-phenylindandione-1,3, m.p. 181°, which is hydrolyzed either to the ω-phenyl-ω-(1',2',3'-triazolyl-1')-acetophenone-o-carboxylic acid, m.p. 195° (decomposing) or 1-benzyl-1,2,3-triazole, depending on the concentration of the NaOH used.

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GUDUSHAURI, O.N.

MEDICAL

J-9605

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UDC 616.71-001.5-08-06

SO: MILITARY MEDICAL JOURNAL

[illegible] NOV 1990

ERRORS AND COMPLICATIONS IN THE TREATMENT OF FRACTURES

Prof. [illegible] Volkov, Corresponding Member, Academy of Med. Sc. of the USSR
Professor O. N. Gudushauri
[illegible]

Modern traumatology provides reliable means and methods for the treatment of various injuries of the mechanism of movement and body support. The achievements of recent years, involving primarily the development of surgical osteosynthesis, have made it possible to solve the problem of treating difficult-to-heal fractures such as those of the femoral neck and avulsive fractures such as those of the olecranon or patella, as well as certain [illegible] fractures of long tubular bones. However, despite these successes in this field, the degree of incapacitation of patients with trauma, still remains high. The function of the extremity in such cases is disrupted by the failure of the fracture to grow together in the correct position. The growing together incorrectly -- or not at all -- the development of false joints or of suppurating complications in the fracture, all tend to immobilize people of productive working age for long periods of time. The treatment of such cases presents great difficulties and sometimes fails to show any results. According to our observations, the treatment of patients with fractures and complications takes, on the average, as long as 3½ to 4 years, and the number of operations to which some of these people have been subjected reaches from 10 to 15.

The basic requirements for the growing together of a fracture are a good condition of the fragments, their solid immobilization for the entire period of consolidation, and functional therapy prior to the surgery. In the great majority of cases, these conditions can be met with the aid of conservative methods which remain fundamental in the treatment of fractures. Complications resulting from conservative treatment are usually due to mistakes in carrying it out. Among the most typical errors in the use of gypsum casts and skeletal stretching are these: repositioning of the fractured bones without adequate anesthesia and without first achieving adequate relaxation of the muscles; a belated repositioning of an extremity in the presence of traumatic edema and the appearance of muscle retraction; immobilizing an extremity with inadequately corrected displacement of the fragments; immobilization of a gypsum cast in slanted or spiral fractures of various bones -- including hip fractures; inadequate cast immobilization; frequent changes of bandages or their untimely change after a decline in the edema of the extremity; long application of excessive loads in skeletal stretching and rejection of momentary repositioning; too little duration of immobilization and premature strain imposed upon the damaged extremity.

Most complications resulting from a conservative treatment involve the use of gypsum casts. In the case of hip fractures, such casts usually produce a secondary shift in bone position, because of the strong pull of the muscles. This form of complication occurs most frequently in the use of gypsum casts for fractures of the tibia. (According to our figures, in 53.7 percent of the cases). Most of these fractures are usually oblique-transversal or spiral-shaped (V. S. Balakina and N. I. Medvedeva, O. N. Gudushauri and others). For this reason, a gypsum cast as an independent method of treatment of patients with the fractures described, should be used very sparingly.

USSR UDC: 51:155.001.57:681.3.06

BACHAUSKENE, M. I., GUDYALIS, L. P., LASHAS, A. V.

"Some Problems of Designing a Font of the OCR-B Type"

V sb. Avtomatika i vychisl. tekhn. (Automation and Computer Technology--collection of works), No 3, Vil'nyus, "Mintis", 1971, pp 101-106 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1020)

Translation: The paper deals with a number of problems relating to the design of a slightly stylized font for both machine and visual reading. A font of an OCR-B type is presented for the Russian alphabet together with certain of its characteristics. Authors' abstract.

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USSR UDC 621.391.2

GVIL'DIS, I. Yu., LASHAS, A. V., BACHAUSKENE, M. I., GUDYALIS, L. P.

"Relative Comparison of Some Rules of Classification in the Case of Low Probabilities of Errors"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 5-13

Abstract: A relative comparison is made in this article of some rules of classification in the case where the probabilities of errors are small. This kind of classification enables determination of the best rule in the sense of error probability for the given objects. Determination of the best rule of classification is carried out as a check on the statistical hypothesis of comparison of two probabilities. It is proposed that the frequencies of rejection be used in the case of a limited number of objects to be tested. Algorithms which realize relative comparison are presented for some rules of classification, and the experimental results of such a comparison are given. Four tables, one illustration, bibliography of nine titles.

1/1

USSR UDC: 621.317.755(088.8)

GRITSAK, D. I., GUDYK, V. I., KHALAVKA, I. I., SHTOYKO, L. V.

"A Device for Intensifying the Beam of a Cathode Ray Tube"

USSR Author's Certificate No 278798, filed 29 Apr 69, published 8 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A312 P)

Translation: This Author's Certificate introduces a device for intensifying the beam of a CRT tube. The device contains a tunnel diode flip-flop, transistorized amplifier and emitter follower with a diode shunting the base-emitter junction. As a distinguishing feature of the patent, delay of the positive front of the output pulse is reduced by connecting the output of the tunnel diode flip-flop to the base of an additional transistor with common emitter, the collector of this transistor being connected to the base of the amplification transistor. The base of the amplification transistor is also connected to the collector of a second additional transistor of opposite conductivity type. The base of this transistor is connected through diodes, resistors and capacitors to the input of the device and to the collector of the amplification transistor.

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USSR UDC: 621.316.91:621.385.3(088.8)

GRITSAK, D. I., GUDYK, V. I.

"A Device for Protecting the Grid-Cathode Space of a Radio Tube From Overload"

USSR Author's Certificate No 260717, filed 11 Jun 68, published 7 May 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D126 P)

Translation: This Author's Certificate introduces a device for protecting the grid -cathode space of a radio tube from overload by negative voltage. The device contains a neon tube, a limiting resistor and a transistor. To reduce the inverse voltage across the grid-cathode space of the tube, one of the leads of the neon tube is connected to the control grid of the tube to be protected and the other lead is connected through the collector-emitter junction of the transistor directly to the tube of the plate, and through the collector-base junction of the transistor to the centertape of a resistive voltage divider for the positive supply voltage. The collector of the transistor is connected to the common grounding bus through a resistor. Resumé.

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Acc. Nr: AP0052062 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 43-45

REPRODUCTION OF EXPERIMENTAL ENDARTERITIS BY HORMONES

A. N. Shabanov, Ts. Ya. Gudynskaya, M. A. Potekayeva, D. V. Komov

Hydrocortisone and testosterone were injected to male rabbits for 3 months, daily. Vessels of the limbs, abdominal and thoracic aorta and renal artery were examined. Unitypical changes, varying from mucoid swelling to plasmatic impregnation were revealed in all the groups of rabbits. Analogous changes were seen in histological and histochemical examination of the vessels at the early stages of endarteritis obliterans.

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JPRS 59208

6 73

VII-6. GROWTH OF EPITAXIAL LAYERS OF GALLIUM ARSENIDE FOR THE MANUFACTURE OF GUNN DIODES

[Article by E. S. Gudz, I. Ye. Maronchuk, B. N. Masenko, Yu. G. Pukhov, L. A. Khodyko, A. M. Yuzevskiy, Svetlovodsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 93]

The basic requirements on gallium arsenide layers used to manufacture Gunn effect devices are formulated. The layers are grown by the gas transport in the $Ga-AsCl_3-H_2$ system. From analysis of the basic stages of growth of the layers in this process and the experimental results, the conclusion is drawn that the reproducibility of the parameters of the layers arises primarily from the quality of treating the surface of the substrates and the processes in the source zone.

A study was made of various versions of etching the substrates in the gas phase, and the regime was selected which permits the surface to be obtained with class 14 finish after gas etching. A detailed analysis was made of the processes in the source zone, and the saturation time of the source was calculated on the basis of the proposed model of the formation of a thin layer of gallium arsenide on the source. A study was made of the characteristic features of obtaining the $n-n^+$ epitaxial structures. Epitaxial layers were obtained with $n = 10^{14}$ to 10^{15} cm^{-3} and a mobility of $\mu = 30,000$ $cm^2/vsec$ at 77° K not containing unevennesses greater than 0.3 microns in an area of 3 cm^2.

GUDZ, E.S

USSR UDC: 621.373.531.1(088.8)

AL'TER, A. M., GOL'TS, M. Ye., GUDZENKO, A. B., OSTREROV, V. M., Ukrainian Scientific Research Institute of Machine Tools and Cutting Tools

"A Transistorized Pulse Generator"

USSR Author's Certificate No 269987, filed 22 Jul 68, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G231 P)

Translation: This Author's Certificate introduces a transistorized pulse generator which contains a multivibrator and an additional transistor of opposite conductivity type connected in a common base circuit. To simplify the device, a time-mark capacitor is connected to the collector of the additional transistor and to the emitter of one of the multivibrator transistors. This time-mark capacitor is simultaneously connected through a resistor, two capacitors and a second resistor to the collector of the other multivibrator transistor.

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USSR

UDC 535.376:621.382

GUDZ, E.S., MARONCHUK, I.YE., SHERSTYAKOV, A.P., YAKUSHOVA, N.A.

"Electroluminescent Screen Of Matrix Type, Emissive In Visible Region Of Spectrum (Short Report)"

Elektron. tekhnika. Nauch.-tekhn. sb. Poluprovodn. pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1972, Issue 4(68), pp 120-122 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B352)

Translation: The report concerns the creation of a flat electroluminescent screen of the matrix type based on solid solutions of $GaAs_xP_{1-x}$ and $Ga_xAl_{1-x}AS$ [sic]. The technology of the production of screens based on epitaxial building-up is considered. Summary.

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USSR UDC 621.378.385

GUDZENKO, L. I., NEZLIN, M. V., and YAKOVLENKO, S. I.

"Recombination Laser Using a Supercooled Plasma Generated in Stationary Form by an Electron Beam"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 9, 1973, pp 1931-1937

Abstract: A supercooled plasma is here defined as a plasma whose free electron temperature is less than the thermodynamically balanced one. The upper operating level must then be filled by the electron recombination flow "draining" through atomic or ionic coupled states. This paper considers the possibility of practically creating an intensive recombination quasi-stationary or stationary plasma by introducing a strong electron beam into a dense gas with an atomic concentration of $10^{19}/cm^3$, the electron energy being 100 kev in a current density of 10-100 amp/cm^2, and thereby designing a continuous plasma laser system with a stationary state of electron supercooling. The nature of the formation of the free electron energy distribution in a stationary dense gas by the electron beam is discussed from a qualitative standpoint. It is noted that a detailed theory taking into account kinetic leveling cannot be constructed until reliable and complete information of the probabilities of collision transitions is available.
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USSR

UDC 539.196

GUDZENKO, L. I., YAKOVLENKO, S. I., Physics Institute imeni P. N. Lebedev, Academy of Sciences of the USSR, Moscow

"A Plasma Laser Based on Molecular Electron Transitions"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 5, 11 Dec 72, pp 1085-1087

Abstract: The authors investigate the possibilities of amplifying stimulated emission in a dense recombining plasma on transitions from thermally stable electron-excited states of the molecules to lower lying dispersion or unstable states. The amplification factor is determined for such a plasma laser based on molecules such as He_2, Ne_2, Hg_2, NeXe, etc., assuming that the ground state of the molecule is a dispersion state. Formulas are derived for the amplification factor when the lower oscillatory levels of the electron term of the excited molecule are projected on steep and flat segments of the dispersion term. These expressions do not involve the probability of radiation transition between laser levels, in as much as it is assumed that the population of the upper level is proportional to this probability. It is found that amplification sufficient for realizing feedback can be attained. The amplification factor can be increased by using an active medium in which the molecules have a thermally unstable ground state.

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GUDZENKO, L. I.

Plasma physics

JPRS 54769

22 December 1971

UDC 533.9.01:621.[illegible]

AMPLIFICATION IN A DECAYING PLASMA

[Article by L. I. Gudzenko and L. A. Shelepin; Riga, [illegible], No 3, July-September 1965, signed to press [illegible] August 1965, pp [illegible]]

The properties of non-equilibrium plasma as a medium amplifying electromagnetic radiation at its discrete spectrum frequencies are discussed. Three stages of non-equilibrium plasma, corresponding to various degrees of ionization, are analyzed qualitatively. It is postulated that the ionization of the plasma is substantially higher than the equilibrium value corresponding to the average energy of its free electrons.

In an examination of the processes accompanying the recombination of practically completely ionized non-equilibrium plasma with free electrons of rather small initial average energy, it is convenient to distinguish three consecutive stages:

1) Highly ionized plasma with "instantaneously" cooled free electrons when the lower discrete atomic levels are hardly populated yet.

2) Appreciably ionized plasma, in which a "steady-state drain" has been established, with overpopulated upper levels in the ground state.

3) Slightly ionized plasma.

From the point of view of creating a non-equilibrium plasma laser [1] the behavior of the plasma at the first decay stage is of greatest interest. The very possibility of such rapid cooling of the free electrons that the initially small populations of the lower discrete levels are not able to increase noticeably during

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USSR UDC: 621.373:530.145.6

GUDZENKO, L. I., YAKOVLENKO, S. I.

"A Vacuum-Ultraviolet Laser"

Kratk. soobshcheniya po fiz. (Brief Reports on Physics), 1970, No 7, pp 3-7 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D139)

Translation: A theoretically simple example is given of amplification by Be II ions on the transition $3S \rightarrow 2P$ ($\lambda = 1776$ Å). Transitions to levels $n = 3$ and $2P$ from lower levels may be disregarded, and it may be assumed that the density of cold electrons is high. A. K.

1/1

USSR

UDC 669.245'71+669.245'871:536.421.4

POLESYA, A. F., and GUDZENKO, V. N., Dnepropetrovsk State University, Chair of Physics of Metals

"Phase Composition of Ni-Al and Ni-Ga Alloys Obtained From the Molten State by Hardening"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 143-146

Abstract: A study was made of the structures of rapidly crystallized alloys of Ni-Al and Ni-Ga systems, possessing similar structural diagrams. The initial materials of these alloys were electrolytic Ni, A99 Al, and Ga of 99.98% purity. The rapid crystallization of the alloy Ni-21 at%Al gives rise to the formation of a Ni-base α-solid solution with the composition of the initial liquid. The rapidly crystallized layer Ni-[illegible] has a single-phase structure of α-solid solution of Ga in Ni. The existence of a high-temperature δ-phase with an ($A6$) type lattice in the 35.2-36.2 at% Al concentration interval was verified. A metastable phase ζ^m with [illegible] lattice develops with rapid crystallization of Ni-Al and Ni-Ga alloys containing 30-35 at%Al, or 30-35 at%Ga. The metastable phase ζ^m develops both by crystallization with lamination of the melt and also without change of the composition, if the composition of the alloy corresponds to the homogeneity range of the ζ-phase. Four figures, one table, fourteen bibliographic references.

1/1

UDC 621.385.622

USSR

GUDZENKO, YU. P., SURACH, K. A.

"Forming Scanning Electron Beams by Periodic Magnetic Fields"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 941-947

Abstract: The authors assert that while the formation of axially symmetrical electron beams by periodic magnetic fields has been discussed in many papers, the problem of the formation of deflected electron beams by a periodic magnetic field has been neglected. This article indicates the major possibility for forming deflected beams by such a field and discusses some of the peculiarities of such formation. The authors develop the equations for the trajectory of an electron under the influence of a symmetrical field and an asymmetrical one, under the condition that the longitudinal velocity is constant and that the magnetic field is a function of the longitudinal coordinate in accordance with the expression

$$B = B_0 e^{aZ+gx/p} \cos Z,$$

where B is the instantaneous value of the field, B_0 is the amplitude of the induction field, a is an index determining the rate of the reduction in the field along the longitudinal axis Z, g = 0 for a symmetrical field and g = 1

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USSR

GUDZENKO, YU. P., et al., Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 940-947

for an asymmetrical one. These equations were solved together with the equations for the space-charge field, also derived in this article, on the Razdan-2 digital computer by the Runge-Kutta method. Among other results of the calculations, the authors conclude that the best condition for beam formation by a magnetic field is obtained by reducing the amplitude of the magnetic field along the beam length.

2/2

USSR

UDC 662.998

DZHIGIRIS, D. D., Candidate of Technical Sciences, DEM'YANENKO, YU. N., Engineer, MAKHOVA, M. F., Candidate of Technical Sciences, GUDZINSKIY, O. S., Engineer and MAZANOVA, N. I., Engineer

"Thermally Insulating Plates Based on Superfine Basalt Fibers"

Moscow, Stroitel'nyye Materialy, No 12, Dec 73, pp 19

Abstract: The basalt superfine fibers (BSFF) have a diameter less than 2 microns. These fibers are the base for the preparation of a soft, very effective insulation material which may be used in the temperature range -200 to +700° C. The BSFF have a high resistance to vibrations, acid, and steam. Values for specific volume, bonding hydroscopic tendency and rigidity are given as a function of plate thickness from 2 to 9.8 mm. The plates are prepared from a polyvinylacetate emulsion having a fiber concentration of 1.5 to 5 g/l of the BSFF. The plates were dried with a corresponding loss of weight of between 0.2-0.3%. These BSFF plates have the advantage of being composed of readily available materials and of having a short processing time -- 2-3 times less than that presently required for processing.

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1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF OXYGEN ON THE ELECTRICAL CONDUCTIVITY OF NICKEL NITRATE FILLED, HEAT TREATED POLYACRYLONITRILE -U-

AUTHOR-(03)-MAGRUPOV, M.A., GUFUROV, KH.M., GAFUROV, I.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(1), 20-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--OXYGEN, ELECTRICAL CONDUCTIVITY, NITRATE, NICKEL COMPOUND, ACRYLONTRILE, THERMAL EFFECT, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1958 STEP NO--UR/0291/70/014/001/0020/0025

CIRC ACCESSION NO--AP0123739

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0123739
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLONITRILE (I) FILLED WITH 0-55.5 WT.PERCENT NI(NO SUB3)SUB2 WAS ANNEALED IN VACUUM AT 220, 300, OR 400DEGREES. THE ELEC. COND. (SIGMA) AND THE ACTIVATION ENERGY (E) OF THE ELEC. COND. OF THE ANNEALED I SAMPLES WERE DETD. AFTER HEATING THEM IN AIR AT 101-240DEGREES. THERE IS AN INCREASE OF SIGMA AND A DECREASE OF E (DETD. AT 20DEGREES IN AIR) WITH AN INCREASE IN NI(NO SUB3)SUB2 CONTENTS AND ANNEALING TEMP. HEATING IN AIR SAMPLES ANNEALED BELOW 300DEGREES (THE TEMP. OF NI(NO SUB3)SUB2 DECOMPN. TO NIO WHICH ABSORBS O) CAUSES LOWERING OF SIGMA AND E; FOR I ANNEALED ABOVE 300DEGREES, SIGNA INCREASES AND E DECREASES. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR UDC: 51:330.115

SUKHORUKOV, G. A., GUGEL', A. S.

"Structural-Functional Analysis of a Technological Complex as an Open System"

V sb. Tekhn. kibernetika. Vyp. 16 (Technical Cybernetics--collection of works. No 16), Kiev, 1970, pp 39-49 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V525)

[No abstract]

USSR

UDC 661.143:546.431'821'185(088.8)

GUGEL', B. M., LODYGIN, N. A., GOLUBEV, I. F., KHIZHA, V. S., BLYAKHMAN, E. A., KUTSENKO, N. A., SIDOROV, M. D., ZVYAGIN, V. B., VAKHRAMOV, V. P., AGAPOV, V. I., GARKUSHA, V. A., KHUSAINOVA, R. S.

"Phosphor for Low-Pressure Luminescent Tubes"

USSR Author's Certificate No 336342, filed 19 May 70, published 22 May 72 (from RZh-Khimiya, No 2(II), Feb 73, Abstract No 2L148P)

Translation: In order to increase the light yield of the tubes, the proposed phosphor includes the following: barium-titanium phosphate, calcium halophosphate, strontium and magnesium orthophosphate and magnesium fluorogermanate. The barium-titanium phosphate, the calcium halophosphate, the strontium orthophosphate, magnesium orthophosphate and magnesium fluorogermanate are introduced in the following proportions by weight: 4-6:2.5-4:0.4-0.8:0.13-0.25 respectively. As an example, let us take weighed samples of 4.36 kg of barium-titanium phosphate, 3.84 kg of calcium halophosphate, 0.40 kg of magnesium-strontium orthophosphate and 0.24 kg of magnesium fluorogermanate. Put them in a porecelain cylinder and mix for 1 hour. A suspension is prepared from the mixture obtained and it is applied to the tubes.

UDC 661.143

USSR

VINNIKOV, A. P., and GUGEL', B. M.

"Effect of Interchange on Luminescence of Manganese in Calcium Chloroapatite and Fluoroapatite"

Sb. Nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances), 1971, vyp 6, pp 23-28 (from RZh-Khimiya, No 17, Oct 72, Abstract No 17L169)

Translation: The authors investigated the EPR line width characteristic of Mn^{2+} for the transition $M = 1/2 \rightleftarrows -1/2$ and the emission spectra of manganese with cathodic excitation in calcium chloroapatite and fluoroapatite. The results show that with a concentration of ~1.0 wt.% manganese in calcium chloroapatite and calcium fluoroapatite, there is a reduction in line width in the EPR spectrum due to the Mn^{2+} interaction. The interaction leads to a reduction in the brightness of manganese fluorescence.

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USSR UDC 661.143

GUGEL', B. M., KUZNETSOV, V. B., and ROMANENKO, Z. G.

"CRT Screens with Cascade Excitation, High Resolution and Increased Durability"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances), 1971, vyp 6, pp 61-70 (from RZh-Khimiya, No 17, Oct 72, Abstract No 17L171)

Translation: The paper describes cascade screens for radar cathode ray tubes with high resolution. Data are given on the luminescence characteristics of the screens.

USSR UDC: 661.143:621.397.13

GUGEL', B. M., RATNER, I. M.

"On Selecting Optimum Parameters of the Green Phosphor for Color Television"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Substances), 1971, vyp. 6, pp 50-60 (from RZh-Khimiya, No 17, Oct 72, Abstract No 17L170)

Translation: The authors calculate the color coordinates and luminescence yield in the green and white area of the color field covered by reference phosphors as the parameters of the green component are varied. It is assume that the energy distribution by frequencies is described by a Gauss curve. The parameters corresponding to the equal-current mode are found, and the optimum parameters are chosen in accordance with a combination of maximum luminescence yield and the best color transmission.

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USSR UDC: 621.145:5[illegible].[illegible]21

GUGEL', B. M., MIKHAILEV, A. A., TETERYUKOVA, V. G.

"Ways to Improve Phosphors for Black and White Television."

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 67-72 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L174)

[illegible]

1/1

USSR

UDC: 661.143:546.47'221

GUGEL', B. M.

"Operational Durability of Cathodic Phosphors Based on Zinc and Cadmium Sulfides"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 52-61 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L175)

Translation: The paper proposes a theory for the drop in [illegible] of cathodoluminescence of [illegible] sulfide [illegible] hypothesis that [illegible] takes place during [illegible] the formation of quenching centers. [illegible] Zel'dovich-[illegible] equation give a logarithmic law for the [illegible] ness with time: Δ [illegible] (1 [illegible] αt), where ΔB is the [illegible] α is the characteristic of the [illegible] comprised of the [illegible] composition, which is [illegible] the current density [illegible] of effectiveness of [illegible] [illegible]

USSR UDC: [illegible]

GARBUSHA, V. A., GUGEL', B. M.

"Synthesis of Antimony- and Manganese-Activated Calcium Halophosphate Free of Antimonates"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 21-25 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L108)

Translation: The presence of antimonates in a luminescent calcium halophosphate composition is evidence that the composition contains [illegible] which reduce its luminescence yield in fluorescent lamps. Therefore methods of making the phosphor free of antimonates are of considerable practical importance. Adding antimony in the form of [illegible] makes it possible to [illegible] apatite at 800-900°C, all the antimony being present in the form of [illegible]. Resumé.

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UDC: 661.143

USSR

PIVNEVA, S. P., KRONGAUZ, V. G., PAN'KOVA, L. T., GUGEL', B. M.

"Formation of (Zn·Cd)S Solid Solutions During Sintering"

Sb. Nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Very Pure Substances), 1971, vyp. 6, pp 36-41 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15L184)

Translation: The high sensitivity of the method of diffusion reflection spectra to analysis of the composition and degree of homogeneity in the ZnS·CdS system is used for studying the peculiarities of the formation of a solid solution as a function of preparative conditions and the quality of the raw material. The authors reveal the degree to which the rate of sintering is affected by the quality of the initial zinc- and cadmium sulfides, treatment of ZnS with various "washing agents" (NH_4OH, NH_4Cl and KOH), conditions of heating the charge, and the gas atmosphere (vacuum, hydrogen, argon, hydrogen sulfide). Existing methods for charge preparation and equipment for calcining do not ensure complete reproducibility of the product even in the presence of fluxes.

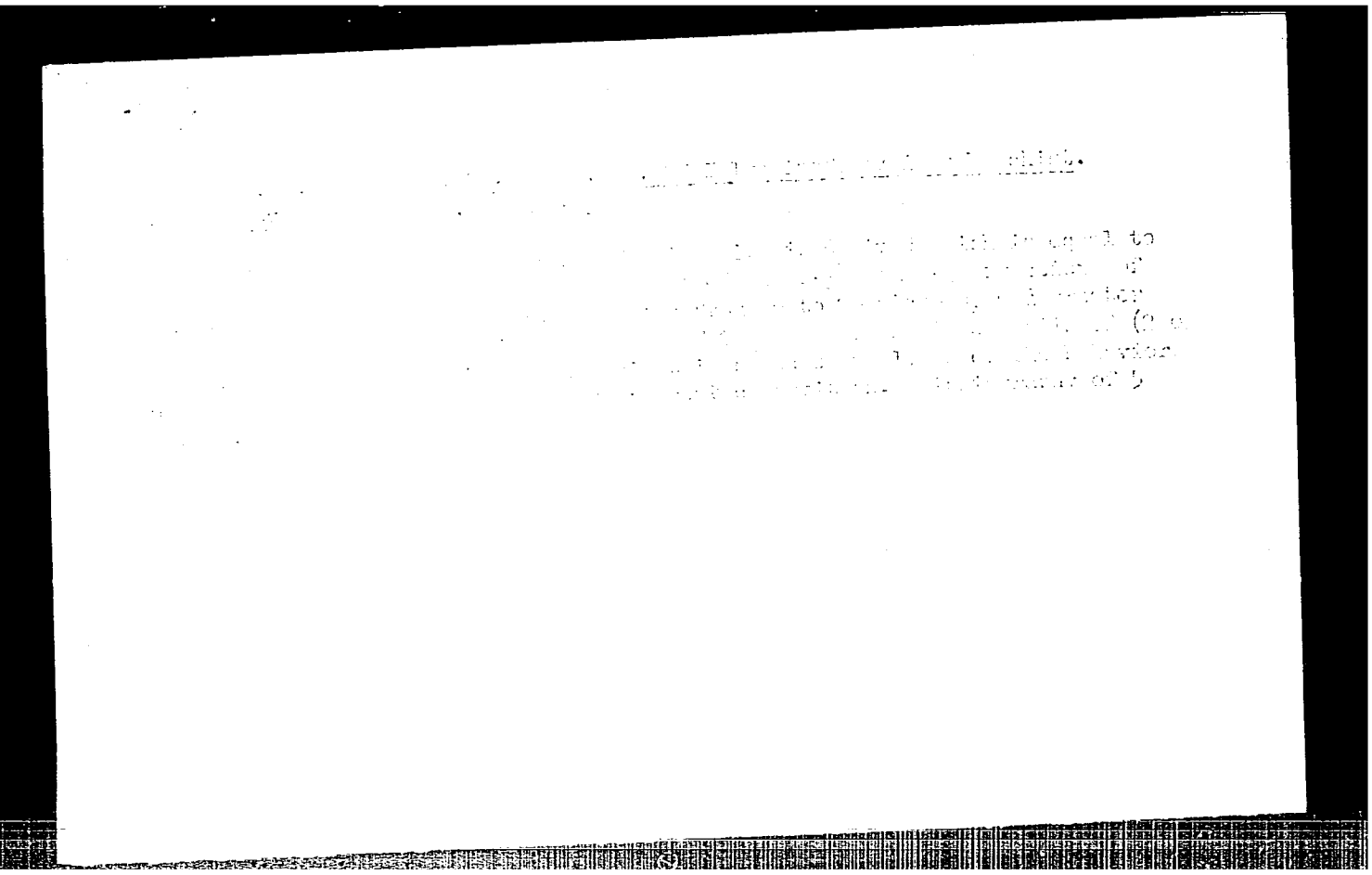
1/1

USSR UDC: 661.143

MIKH[illegible], A. [illegible], KIRCH[illegible], V. M., MOROZOV, O. A., KOL[illegible], [illegible], TE[illegible], [illegible] G., [illegible] N. M.

"A [illegible] Predicting the Uniformity of the Luminescence Color of [illegible] Coating"

Sb. [illegible] (Collection of [illegible] Works of the All-Union Scientific Research Institute [illegible]), 1971, vyp. 5, pp [illegible] ([illegible], No 7, [illegible], Abstract No 7L17[illegible])



1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEFORMATION OF OXIDE FILMS ON STEEL 16GNM -U-

AUTHOR-(02)-RYTVINSKIY, A.I., GUGELEV, B.M.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(1), 108-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--LOW ALLOY STEEL, ALLOY DESIGNATION, METAL OXIDE, OXIDE FILM, PITTING CORROSION/(U)16GNM LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1550 STEP NO--UR/0365/70/006/001/0108/0109

CIRC ACCESSION NO--AP0120329

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT7

2/2 023

CIRC ACCESSION NO--AP0120329

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS INVESTIGATION BEARS DIRECTLY ON THE PITTING CORROSION AND SUBSEQUENT CRACKING OF BOILER DRUMS RESULTING FROM THE DIFFERENCES IN EXPANSION AND CONTRACTION OF OXIDE FILMS ON STEEL. THE BEHAVIOR OF THE OXIDE FILMS WERE STUDIED UNDER THE FOLLOWING CONDITIONS: (1) STEAM AT 500DEGREES FOR 100-300 HR, (2) BOILER WATER AT 350DEGREES FOR 100-1000 HR, (3) AIR AT 650DEGREES FOR 5 HR, (4) AIR AT 650DEGREES FOR 5 HR, FOLLOWED BY AIR AT 20DEGREES FOR 3500 HR, (5) AIR AT 650DEGREES FOR 5 HR, FOLLOWED BY AIR AT 20DEGREES FOR 3500 HR FOLLOWED BY STEAM AT 500DEGREES FOR 100-200 HR. THE SCALE FORMED UNDER THESE 5 CONDITIONS WAS CAREFULLY ANALYZED AND TESTED FOR EXPANSION AND CONTRACTION.

UNCLASSIFIED

UDC. 621.371

USSR

GUGIN, A. S.

"Computing the Propagation Constant of Surface TE Waves Along a Cylinder Over the Bounds of an Interface Between Two Media"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 6 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 6--collection of works) "Nauka," 1972, pp 73-77 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A394)

Translation: An equation is derived for determining the propagation constant of surface TE waves excited by a magnetic dipole (a frame with a current surrounding the conductor), along a cylindrical conductor over the bounds of an interface between two media. Application of the equation to the particular case in which the conductor is placed in the air over land or sea water is considered. Bibliography of four.

1/1

USSR UDC: 669.1:541/1

ZHUKHOVITSKIY, A. A., BELASHCHENKO, D. K., BOKSHTEYN, B. S., GRIGOR'YEV, V. A., GRIGOR'YEV, G. A., and GUGLYA, V. G.,

Fiziko-Khimicheskiye Osnovy Metallurgicheskikh Protsessov (Physico-Chemical Bases of Metallurgical Processes), Moscow, Metallurgiya, 1973, 392 pp

Translation: Annotation. This book contains the material of special courses used by the students of the Physics-Chemistry Department of the Moscow Institute of Steel and Alloys. This work makes it possible for a broad range of young specialists to acquaint themselves with many branches of modern physics and physical chemistry. The book contains: 104 illustrations, 17 tables, and 292 bibliographic entries.

Contents.

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

[illegible]

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ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

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1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--DIAPHRAGM DENSIMETER -U-

AUTHOR-(03)-GUGLYA, V.G., GOLDEN, A.D., DATSKEVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 240-2

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS

TOPIC TAGS--MANOMETER, PRESSURE MEASUREMENT, PRESSURE MEASURING INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1427 STEP NO--UR/0032/70/036/002/0240/0242

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. CONSISTING OF A DETECTOR AND MANOMETER IS SUITABLE FOR D., MOL. WT., AND GAS COMPN. DETNS. THE MANOMETER HAS A "GETINAKS" DIAPHRAGM CAPABLE OF MEASURING PRESSURE DIFFERENTIALS OF 0.01-0.1 MM H SUB2 O AS ELEC. OUTPUT SIGNALS WITH A SENSITIVITY OF 15 UV-MM H SUB2 O AT A TIME DELAY OF 0.1-0.2 SEC. THE DETECTOR (VOL. SIMILAR TO 0.1 CM PRIME3) COMPARES SMALL STREAMS OF SAMPLE GAS, WITH A HE OR H CARRIER GAS. A LINEAR RELATION WAS OBSD. BETWEEN CCL SUB4, CHCL SUB3, C SUB2 H SUB4, AND C SUB6 H SUB6 SAMPLE WTS. AND DETECTOR OUTPUTS. GAS ANALYSES MADE WITH A KATHAROMETER AND THE DENSIMETER DESCRIBED WERE WITHIN 2.5PERCENT. FACILITY: MOSK. INST. SKALI SPLAVOV, MOSCOW, USSR.

1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DETERMINATION OF THERMODYNAMIC CHARACTERISTICS BY USING A PIEZOELECTRIC MICROWEIGHING METHOD -U-

AUTHOR-(03)-GUGLYA, V.G., IVANOV, G.A., SEMENOVA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 289-92

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--THERMODYNAMICS, QUARTZ, PIEZOELECTRIC EFFECT, FREQUENCY CHARACTERISTIC, HEAT OF VAPORIZATION, DECANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0099 STEP NO--UR/0032/70/036/003/0289/0292

CIRC ACCESSION NO--AP0127725

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0127725
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRINCIPLE OF A PIEZOELEC. MICROBALANCE, I.E. DETN OF THE FREQUENCY CHANGE OF THE QUARTZ PLATELET CAUSED BY ITS LOAD CHANGES, WAS USED TO DET. THE HEAT OF VAPORIZATION OF OCTADECANE. THE MEASURED VALUE (21.5 KCAL) IS IN FAIR AGREEMENT WITH THE CALCD. ONE (22.03 KCAL). THE APP. AND EXPTL. PROCEDURE ARE DESCRIBED AND THE FACTORS INFLUENCING THE ACCURACY AND REPRODUCIBILITY OF THE MEASUREMENT ARE CONSIDERED. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

UDC 512.831

USSR

ARZHANYKH, I. S., GRONINA, V. K., and LOGINOV, B. V., Institute of Mathematics imeni V. I. Romanovskiy, Academy of Sciences Uzbek SSR

"On a Generalization of the Hamilton-Cayley Theorem for Multiparameter Matrices and on Root Vectors of Polynomial Matrices"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 5, 1971, pp 3-8

Abstract: Previous articles by the authors proved the Hamilton-Cayley theorem for polynomial matrices of the type $\phi(\lambda) = \lambda^s I - \lambda^{s-1} A_1 - \ldots - \lambda A_{s-1} - A_s$ where A_1, ..., A_s are square matrices of order n; I is an identity matrix; λ is a parameter. The present article generalizes this result for the case of several parameters $\lambda_1, \lambda_2, \ldots, \lambda_n$, then gives a natural definition of root vectors of polynomial matrices.

(4)

JJPS 61321 20 F. 6. 74

PRODUCTION OF SPHERICAL AND FINELY DISPERSED POWDERS IN LOW-TEMPERATURE PLASMA

[Article by N. N. Rykalin, V. A. Petrunichev, I. D. Kulagin, L. M. Sorokin, Ye. B. Koroleva, A. B. Gugnyak, Moscow, Plazmennyye Protsessy v Metallurgii i Tekhnologii Neorganicheskikh Materialov, Russian, 1973, pp 220-230]

Low-temperature plasma, generated in an arc or induction discharge, is an effective means of solving problems of producing refractory powders with spherical particles and ultradispersed powders with high specific area. The range of application of such powders is steadily expanding. Applications include various types of filters, cathodes for vacuum tubes, emitters, dispersion hardeners for alloys, fillers for plastics, pigments, carbon black, propellant components and many other products. During the last decade certain organizations of the Soviet Union have developed and investigated new plasma methods for producing such powders and the corresponding apparatus.

Some of the developments have found successful application in industry, particularly in new technology, or are undergoing experimental-industrial tests.

The results of investigations conducted by the Institute of Metallurgy im. A. A. Baykov, Academy of Sciences USSR, using both arc and induction discharge plasma, are presented in this article. At the present time it is still difficult to delineate the range of efficient utilization of these types of plasma heating in connection with their features, which may turn out to be advantageous for the solution of specific problems.

Production of Spherical Particles in Arc Plasma

The process of plasma spheroidization annealing of materials may be represented in general form as consisting of the following stages: 1) melting and spraying of treated material, 2) rounding of molten particles, 3) hardening and cooling of particles. The starting material may be inserted in the plasma jet in the form of powder or wire (rods).

GUGNYAK, A.B.

The method of injection of the material with a positive potential applied to it from a power source is used for sputtering wire or electrically conducting rods. In this case the anode spot is played upon the end of the wire or rod to ensure maximum process productivity. Spheroidizing of powder and nonconducting materials is done in an independent plasma jet.

Sputtering of Wire

This process is done in the same way as plasma spraying and may be accomplished with the same equipment. Conducting wire is heated and sputtered with the heat of the arc or joule heat released during ejection of the wire [1, 2]. By analogy with the fusion of welding electrodes, the growth of the liquid droplet of the metal that forms on the end of the wire is an exponential function of time [3]. However the lifetime of the droplet is substantially shorter here, since considerable forces act on the droplet from the direction of the strong gas flow, heated to a high temperature.

When the forces acting on the droplet from the jet (mechanical force of the gas, pressure of the arc, etc.) and its own weight exceed the surface tension that holds it on the end of the wire, the droplet separates, acquiring an arbitrary outline. Traveling at high speed in the hot gas stream, the liquid particle becomes rounded under the influence of surface tension, and then it cools and solidifies in the normal temperature zone. The spheroidizing time t_s of the droplet (according to an approximate model of contraction of arbitrary geometric shapes with maximum dimension R into a sphere with radius r) may be found from the condition $\delta A = \alpha(f/df - f/df)$ and expressed through the equation

$$t_s = (R/2 - r)^2 \pi^2 (f - f)/m, \qquad (1)$$

where δA is the change of a free shape with area F to a spherical shape with area f, α is the surface tension coefficient, and m is the mass of the particles.

This time comprises thousandths and hundredths of a second and is substantially shorter than the time of solidification and cooling of the particles. Tests show that tungsten and molybdenum particles measuring larger than 100 μ retain their capacity for deformation on impact with water for a distance of 300-400 mm. This must be taken into account in the design of equipment for making spherical particles. In the UPSL-2 apparatus (designed by IMET [Institut metallurgii im. A. A. Baykova; Institute of Metallurgy im. A. A. Baykov]) the chamber height is about 1.5 m, which ensures reliable spheroidizing of particles up to 1 mm in diameter without deformation when collected in water.

The complex set of forces that act upon a liquid droplet during sputtering and the possibility of coagulation and breakup of droplets in flight result in considerable scattering of particles in terms of dimensions. For each combination of mode parameters, however, it is

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EMPIRICAL METHOD OF IDENTIFYING THE STRUCTURE OF ONE DIMENSIONAL NONLINEAR CONTROLLED PLANTS WITH AN EXTREMAL CHARACTERISTIC -U-

AUTHOR-(03)-GUGUSHVILI, A.SH., ENDELADZE, D.L., AREFYEV, B.O.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA, VOL. 15, MAR.-APR. 1970, P. 43-47

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--INDUSTRIAL AUTOMATIC CONTROL, NONLINEAR AUTOMATIC CONTROL, MATHEMATIC MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1807 STEP NO--UR/0102/70/015/000/0043/0047

CIRC ACCESSION NO--AP0135372

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201030001-2"

2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135372
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF AN EMPIRICAL METHOD OF IDENTIFYING THE STRUCTURE OF PLANTS WHOSE MATHEMATICAL MODEL IS COMPOSED OF AN APERIODIC COMPONENT, A NONLINEAR COMPONENT, AND A DELAY COMPONENT CONNECTED IN SERIES. ANALYTICAL EXPRESSIONS FOR THE OUTPUT FUNCTIONS OF SEVERAL PLANT VERSIONS ARE DERIVED.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE NEUMANN METHOD IN THE INVERSE PROBLEM OF SCATTERING THEORY -U-

AUTHOR-(02)-GUGUSHVILI, E.I., MENTKOVSKY, YU.L.

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COUNTRY OF INFO--USSR

SOURCE--(ITF-70-6) 1970. 13P. DEP. CFSTI

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--COULOMB SCATTERING, NUCLEAR SCATTERING, INVERSE PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0164 STEP NO--UR/0000/70/000/000/0001/0013

CIRC ACCESSION NO--AT0127758

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0127788

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MAIN POINTS OF THE RIGOROUS SUBSTANTIATION OF THE PREVIOUSLY SUGGESTED SCHEME OF RESTORATION OF THE NUCLEAR POTENTIAL WHICH CORRESPONDS TO GIVEN DATA OF THE NUCLEAR COULOMB SCATTERING ARE CONSIDERED. FACILITY: AKADEMIYA NAUK UKRAINSKOI SSR, KIEV. INSTITUT TEORETICHESKOI FIZIKI.

UNCLASSIFIED

USSR

UDC 619.7:612.8

MOSIDZE, V. M., and GUGUSHVILI, M. L., Institute of Physiology, Academy of Sciences Georgian SSR

"Effect of Extirpation of the Parietal Association Areas of the Cortex of the Large Hemispheres on Short-Term Memory in Dogs"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 59, No 2, Aug 70, pp 433-436

Abstract: The effect of the posterior association or parietal regions of the cortex on short-term memory was studied. Results obtained in such studies in the past have been contradictory. Three dogs were presented with both visual and auditory stimuli (associated with food), and the maximum delay period after which the dogs would still react to the stimuli was determined. The anterior lateral and middle suprasylvian gyri (field 7) of the dogs' brains were then removed, and the experiments were resumed 10 to 14 days after the operation. A considerable reduction of the delay time was noted in all three dogs, and several weeks of training were required to achieve the previous performance levels. It was suggested that, for each visual or auditory stimulus perceived, the parietal regions as well as the appropriate projection zones are activated. According to the reverberation theory of the origin of short-term memory, closed neural cycles are

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MOSIDZE, V. M., et al, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 59, No 2, Aug 70, pp 433-436

formed between these activated regions. In other words, the parietal area may be considered one of the integral links of a complex reverberation system for the organization of short-term memory.

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Aluminum and Its Alloys

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DRITS, M. YE., KOROL'KOV, A. M., GUK, YU. P., GERASIMOVA, L. P., and PETROVA, E. N.

"Fracture of Aluminum Alloys Under Tensile Stresses"

Moscow, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

Translation of Introduction: Aluminum alloys are finding ever increasing use in contemporary technology. Possessing sufficiently high specific strength, good corrosion resistance, and technological properties, aluminum alloys in many fields of technology are competing with steels.

Use of high-strength aluminum alloys in large-scale heavily stressed structures operating under conditions of tensile stress actions has led to the appearance of cases of fracture under loads notably smaller than the computed yield stress of the alloys. This is causing increased interest in studying the processes of fracture of aluminum alloys.

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DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

A large amount of research by domestic and foreign investigators is being devoted to the problem of fracturing of metals and alloys at the present time. Considerable attention is being paid to theoretical investigations of questions involving the mechanics of fracture. Much less research has been devoted to investigating the influence of structure and composition of materials on the processes of fracture development. However, it is precisely this question which has significance both in the development of compositions of new alloys and the technology of their production and in ensuring reliability and longevity of structures from existing and newly created alloys.

Therefore the basic problem of the present research was the study of laws governing the fracture of complexly alloyed aluminum alloys and especially the establishment of the influence of

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structural factors which facilitate the premature generation and development of cracks in them under the effect of tensile stresses. This permits evaluating the influence of structural features of alloys on the structural strength of finished products and selecting ways for increasing the efficiency of alloys under conditions of exploitation, and also predicting the behavior of newly developed aluminum alloys under conditions of tensile stress actions.

Thanks to the series of devices developed at the Institute of Science of Machines of the Academy of Sciences USSR under the direction of Doctor of Technical Sciences Professor M. G. Lozinskiy such as the IMASH-5, IMASH-9, IMASH-10, etcetera, the possibility has arisen for the development of new directions in the investigation of microstructure and properties of metals and alloys, which permit establishing the interrelationship between

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changes in structure and applied stresses under different loading schemes in a wide range of temperatures of the investigation.

This method of investigation is the most effective for solving the problem posed and was taken as the basis for carrying out the present investigations.

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